PSR-214

50-CHANNEL RECEIVER/SCANNER

OWNER'S MANUAL

The PSR-214 computer receiver/scanner enables you to experience all the action for yourself. This receiver/scanner gives you direct access to over 22,000 frequencies. The secret of the PSR-214 is a microprocessor which has been developed with this specific object in mind. This microprocessor provides the PSR-214 with, amongst other things, the following facilities:

LCD DISPLAY
Provides information not only on the channels and frequencies to be received, but also on a number of functions.

TWO FREQUENCY SEARCH OPTIONS
You can search upward or downward through the preset frequency bands (band search) or start from a specified frequency (direct search).

MONITOR CHANNEL
While the frequency search is proceeding, the newly-found frequency can, if necessary, be temporarily stored in the monitoring channel.

RETURN MESSAGE DELAY
This ensures that once a message has been received, there is a waiting period of two seconds before the return message appears.

COMPUTER MEMORY BACKUP
The scanner's memory is retained for approximately one hour following the moment at which the mains adapter has been withdrawn from the power point, or where the mains voltage has been cut off.

LOCK OUT
This enables you to exclude certain channels, or a group of channels, from the scan.

The PSR-214 covers the following bands:
68-88 MHz (VHF Lo)
137-174 MHz (VHF Hi)
380-512 MHz (UHF)

NOTICE

The use of this scanner is only authorised if the person concerned complies with all the provisions which apply within the country in which the scanner is used. You are advised to satisfy yourself that you are aware of the various restrictions which might apply within a particular country. At no time will your supplier be liable for the unlawful use of a scanner.

HOW TO AFFIX THE AERIAL SUPPLIED WITH THE SCANNER

Screw the supplied telescopic aerial into the hole situated in the top right-hand corner of the scanner.
The length of the aerial will affect the quality of the reception achieved by the scanner. For maximum reception, use the aerial as follows:

68 - 174 MHz: aerial should be fully extended
380 - 512 MHz: one sections of the aerial should be pulled out.

CONNECTING THE SCANNER TO AN OUTSIDE AERIAL (OPTIONAL)

The provided telescopic aerial will normally be perfectly adequate for the purpose of receiving strong, local signals. In order to receive the weaker signals also, an outside aerial may be connected to the aerial connector situated at the rear of the PSR-214.

For this purpose, use a optional scanner aerial - your supplier will be able to provide you with further information on this subject.

Place the outside aerial on as high a location as possible, and assemble it in accordance with the instructions provided. To link the aerial to the scanner, use a coaxial cable. For any distance of less than 15 meters, a cable of the RG58 type may be used, whereas for longer cables the use of the thicker RG8 type is recommended.

CONNECTING THE SUPPLY VOLTAGE

Insert the round supply plug of the adapter in to the receiver/scanner's **DC 12V** connector. Then insert the adapter in to the wall socket.

CAUTION: the adapter supplied with the scanner provides 12 volts DC with a current of 300 mA, and has a supply plug whose centre contact is positive. Use of any adapter which does not comply with this requirement may cause irreparable damage to the scanner.

The memory back-up system starts to operate a few minutes after voltage was connected to the scanner. If the voltage is cut off temporarily or indefinitely, the information stored in the memory will remain stored for a period of approximately one hour.

CONNECTING THE EXTERNAL SPEAKER (OPTIONAL)

In a noisy area, an extension speaker can provide more comfortable listening. Plug the speaker cable's 3.5mm mini-plug into the scanner's **SPEAKER** connector.

Note that your scanner will not disconnect the internal speaker.

CONNECTING THE TAPE RECODER (OPTIONAL)

You can record broadcast with a tape recorder through the **SPEAKER** connector. Connect the cable between your PSR-214 and tape recorder. You can receod the broadcast while receiving

RESTART

If the scanner has not been connected for some time, it may fail to react to keying-in of certain commands and also, the display unit could appear not to be functioning normally.

In such cases, the RESTART procedure needs to be carried out:

1. Switch on the scanner.
2. Use a pointed object - e.g. a straightened paper clip - to press the **RESET** button which is located next to the **DC 12V** connector.

If the scanner continues not to react properly, the microprocessor needs to be restarted.

When the microprocessor is restarted, the information stored in the computer memory will be lost. Therefore take the utmost care when carrying out the following procedure:

1. Switch on the scanner.
2. Press and hold down the [CLEAR] button on the keyboard while pressing the **RESET** button by means of a pointed object. First release the **RESET** button, then release the [CLEAR] button.

Fig. 1 DISPLAY

THE DISPLAY (see fig. 1)

SEARCH—lights up during a band or direct search.

▲ or ▼—indicates the search direction during the search.

WX—lights up when you scan or manually select a channel in the weather band. The weather band is not available in Europe.

DELAY—lights up where the return message delay function has been activated for a certain channel or while the frequencies are being searched. This will ensure that, once a message has been received, the scanner will wait for a return message for a period of approximately two seconds.

MON—lights up when the monitor memory is being accessed.

PROGRAM—indicates that the scanner is in the programming mode.

SCAN—lights up while the channels are being scanned.

MANUAL—lights up when a channel can be chosen manually.

LOCK-OUT—lights up where the channel in question has been excluded from the scanning process. The L/O function can be switched on or off for each channel.

ch—lights up with a number (1-50) to the left to show which of the scanner's 50 channels it is tuned to.

888.8888—these digits show which frequency your scanner is currently tuned to.

-d—lights up instead of the channel number during a direct search.

THE KEYBOARD (see fig. 2)

The keys have the following functions:

BAND—searches a band you select.

SCAN—enables the process of scanning the channels to begin.

▲—starts upward frequency search, etc.

▼—starts downward frequency search, etc.

WX—scans the preset weather frequencies. The weather frequencies are not available in Europe.

MANUAL—stops the scanning process; at this point, a channel number may be keyed in.

CLEAR—erases message wrongly keyed in.

PROGRAM—sets the scanner in programming mode in order to be able to store frequencies in the memory.

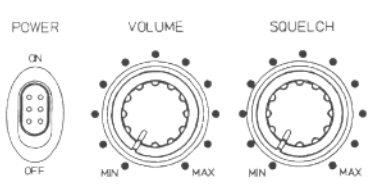

Fig. 2 Controls

0/MON—double function: figure 0, but at the same time gives access to the monitoring channel.
./DELAY—double function: decimal point, but is also used for the purpose of switching on and off the 2 second counter message delay function.
ENTER/L-OUT—double function: stores a frequency in the memory during programming, but is also used in order to switch the LOCK OUT function on and off.

FREQUENCY BANDS

The PSR-214 has ten frequency search bands, each of which covers a specific range of frequencies. You can search these bands for specific broadcasts/transmission using either a band search or a direct search. This table shows the frequency band range displayed by the scanner and frequency coverage for each and step frequency.

Band No.	Step Freq.	Band Range (MHz)
b0	5 kHz	68.000-75.000
b1	5 kHz	75.000-82.000
b2	5 kHz	82.000-88.000
b3	5 kHz	137.000-144.000
b4	5 kHz	144.000-148.000
b5	5 kHz	148.000-174.000
b6	12.5 kHz	380.000-420.000
b7	12.5 kHz	420.000-450.000
b8	12.5 kHz	450.000-470.000
b9	12.5 kHz	470.000-512.000

Notes:

- While searching through a frequency band, you might hear a frequency you want to store. You can store the frequency into a channel.
- You cannot change or delete any of the frequencies in the frequency bands.

MEMORY

The PSR-214 has 50 memory locations (known as channels) as well as 1 temporary memory location (also known as the monitor channel).
It is possible to program a frequency into each channel; this frequency can subsequently be scanned by the scanner or called up manually.

In addition, the PSR-214 has a monitor channel. The monitor memory can be regarded as a kind of scribbling pad memory; The monitor memory enables the user to store an active frequency during search. You can call up the monitor manually. Later, the monitor memory may be transferred to a permanent memory.

SWITCHING ON THE VOLUME AND SQUELCH FUNCTIONS (see fig. 2)

Turn the **SQUELCH** (i.e. noise suppressor) control fully to the left. Now switch on the scanner by using the ON/OFF switch and regulate the noise level by using the **VOLUME** control, so that the noise becomes fully audible. Now turn the **SQUELCH** control to the right until the noise becomes no longer audible.
In order to prevent the reception of undesirable weak signals, the **SQUELCH** control may be turned further to the right as required.

PROGRAMMING

Follow the steps set out below in order to program the scanner:

1. Key in [MANUAL].
2. Key in the channel number, which appears on the right of the display.
3. Key in [PGM]. The **PROGRAM** indicator on the display will light up.
4. Key in the frequency - e.g. the 78.500 frequency will be keyed in as follows: [7] [8] [.] [5] [0] [0].
5. Key in [ENTER] in order to store the message keyed in, or [CLEAR] wrong message has been keyed in and need to be erased (the display will show Error message).

Note: If you entered a frequency in step 4 that is already stored in another channel, the lowest numbered channel containing the duplicate frequency and **dUPL** (duplicate) flash on the display for about 3 seconds. To store the duplicate frequency anyway, press [ENTER].

To store another frequency instead, repeat steps 4 and 5, entering the new frequency in step 4.

6. Press the [./DELAY] key until the **DELAY** message appears on the display in order to switch on the counter message delay function.
7. Repeat steps 2 to 6 in order to program further channels; if the next channel to be programmed immediately follows that which has just been programmed, you only need to follow steps 3 to 6.

SEARCHING NEW FREQUENCIES

You can search for transmissions within any of the scanner's 10 frequency bands, then store them into the scanner's channels (during a band search) or temporarily store one into the scanner's monitor memory (during a direct search).

Band Search

You can select a frequency band and search for transmissions within that band.

1. Repeatedly key in [BAND] until you see the frequency band you want to search.

The scanner displays b, the band number, and the range for the frequency band. Then, after about 2 seconds, the scanner displays **SEARCH** and▲, flashes the current channel number, and the scanner starts to search the frequencies in the band. When the scanner finds a transmission, it stops and displays the frequency's number until the transmission stops, then it starts searching again.

Notes:

. You can change the direction by pressing and holding down [▲] or [▼] for about one second.

. To manually step through the frequencies in the selected band, repeatedly press and release [▲] or [▼]. To continue automatic search, press and hold [▲] or [▼] for about 1 second.

. To select another frequency band to search, you can use the number keys to enter the band's number. The scanner displays b, the new band number, and the range for the new selected frequency band, then searches the band.

2. When the scanner finds an active frequency, you can do either of the following:

. To store the frequency into the flashing channel, press [ENTER]. The scanner stores the frequency in the flashing channel, then the next available channel number flashes.

. To continue searching, press and hold [▲] or [▼] for about 1 second.

Note: After you store a frequency into the last available channel, **–ch** appears instead of a channel number on the display. If you try to store another channel while **–ch** is displayed, **Ch FULL** appears. If this happens, you must delete some frequencies from channels before you can store any more.

Direct Search

1. Key in [MANUAL].
2. Key in the frequency from which the search has to start.

The PSR-214 can also make a search directly from a channel. For this purpose, key in [MANUAL], the channel number, and then [MANUAL] once again.

3. For upward search, press and hold [▲] about one second and for downward search press and hold [▼] about one second.
4. Where necessary, key in [DELAY] in order to switch on the counter message delay function.

If the scanner finds an active frequency, the searching process will stop, and you will hear the broadcast/transmit. The scanner will remain on this frequency as long as the latter is active; once it ceases to be active, the searching process is restarted.

In order to restart the scanning process while the frequency is still active, press and hold [▲] key or [▼] key for about one second.

Press the [./MON] key in order to store a frequency temporarily in the monitor memory.

The monitor memory may be listened to by keying in [MANUAL] and then [./MON].

TRANSFERRING THE MONITORING CHANNEL TO A PERMANENT MEMORY

The monitoring channel can be transferred to a permanent memory as follows:

1. Key in [PGM].
2. Key in the channel number in which you wish to perform a programming operation.
3. Key in [PGM] and then [./MON]. The channel number will flash, and the frequency stored in the monitoring channel will appear on the display.
4. Key in [ENTER]. The monitor frequency has now been stored in the desired channel.

SCANNING THE CHANNELS

Key in [SCAN] in order to start the automatic scanning process. Manipulate the **SQUELCH** in such a way that no noise is audible. As long as the noise is audible, the scanner will remain on the channel in question.

The scanner will stop at an active channel, and resume the scanning process as soon as the channel is no longer being used.

LOCK-OUT FUNCTION

The LOCK-OUT function will enable you to skip a channel during scanning as follows:

1. Key in [MANUAL].
2. Key in the channel number, then key in [MANUAL] again.
3. Key in [ENTER], then **L/O** will appear on the display.

By using the same procedure, a channel for which the LOCK-OUT function has been switched on can once again be cleared.

ERASE STORED FREQUENCIES

If you wish to erase a frequency, use the following procedure:

1. Key in [PGM].
2. Key in the channel number, then key in [PGM] again.
3. Key in [CLEAR].
4. Key in [ENTER].

MANUAL SELECTION

It is possible to listen continuously to a channel without reactivating the scan process once a conversation has ended:

1. Key in [MANUAL].
2. Key in the channel number, then key in [MANUAL].

Where, during the scanning process, the scanner stops at a channel which is engaged, you may key in [MANUAL]. The scanner will then remain on that channel, and will not perform any further scanning operations. By repeatedly pressing down the [MANUAL] key, you will "walk" through the channels.

GENERAL HINTS

BIRDIES

The term "birdies" refers to noise signals which are generated by the scanner itself. On certain frequencies, birdies are capable of interfering with, or even preventing, reception. If the interference is of a mild nature, it may be possible to solve the problem by turning the **SQUELCH** control further to the right. If possible, use the following frequencies as little as possible:

68.630 MHz	76.800 MHz	81.805 MHz
81.850 MHz	140.800 MHz	153.600 MHz
166.400 MHz	384.000 MHz	396.800 MHz
409.600 MHz	422.400 MHz	435.200 MHz

RECEPTION

The distance over which it is possible for you to receive messages is restricted to approximately 25 km. The manner in which the scanner has been disposed will also be relevant here. It is preferable to dispose the scanner in such a way that the aerial has a "clear view". In order to be able to receive transmitters or transmitters located at distances beyond the aforementioned limit, the use of an outside aerial is recommended.

The band division (frequency step) - i.e. the distance between two frequencies lying next to each other - is different for each frequency band.

For frequencies up to 174 MHz, this division (step) is 5 kHz, whereas for higher bands it is 12.5 kHz. This division is called frequency grid. If the frequency keyed in does not fit into this grid, the scanner will round down the frequency to the nearest value.

MAINTENANCE AND USE

The PSR-214 is a quality product and requires a minimum amount of maintenance. Carefully read the following instructions:

- Do not expose the scanner to rain or moisture.
- Handle the scanner with care. Dropping it or subjecting it to rough treatment might damage its electronics.
- Where necessary, clean the scanner with a damp cloth. Do not apply any cleaning fluids or solutions to it.
- Only use the scanner in normal temperature conditions. High temperatures, or sudden changes of temperature, will reduce the life span of the scanner.

IN CASE OF FAULT

Where a fault arises, contact your supplier, However, before you do so check that the fault was not caused by an operational error. Carefully reread the relevant section in the instructions.

TECHNICAL DATA

Frequency range:

- 68-88 MHz (5 kHz steps)
- 137-174 MHz (5 kHz steps)
- 380-512 MHz (12.5 kHz steps)

Number of channels		50
Sensitivity (at a signal-to-noise ratio of 20 dB):		
	68-88 MHz	1 uV
	137-174 MHz	1 uV
	380-512 MHz	1 uV
Selectivity:	+/-10 kHz	-6 dB
	+/-20 kHz	-50 dB
Mirror suppression		50 dB at 154 MHz
Scanning rate		25 channels/sec.
Search rate		50 steps/sec.
SQUELCH threshold		1.0 uV
Return message delay		2 seconds
First intermediate frequency		10.7 MHz
Second Intermediate frequency		455 kHz
Aerial impedance		50 ohms
Audio output		0.8 watt max.
Dimensions		52 x 210 x 175 mm
Weight		approx. 680 grammes

The manufacturer reserves the right to improve and adjust the specifications and application possibilities.